

28 Apr 1995  
WPNSSB

VO6NM-C

VOLTMETER, FREQUENCY SELECTIVE

**1. GENERAL.** This procurement requires a frequency-selective voltmeter with a high impedance probe.

**2. CLASSIFICATION.** Type II, Class 5, Style E, and Color R in accordance with MIL-T-28800 for shipboard applications.

**3. MEASUREMENT CAPABILITY.** The equipment shall be provided with signal level measuring capability within the minimum ranges, bandwidths, and accuracies specified below.

**3.1 Frequency range.** 50 Hz to 30 MHz with 50 and 75 ohm unbalanced inputs and 100 Hz to 108 kHz with a 600 ohm balanced input.

**3.1.1 Tuning.** Frequency tuning shall be accomplished by entering the frequency directly on the equipment keyboard or by coarse and fine manual controls.

**3.1.2 Frequency accuracy.**  $\pm 1 \text{ Hz} \times 10\text{E}-5$  per year.

**3.1.3 Frequency display resolution.** 1 Hz or less.

**3.1.4 Bandwidths.** Three selectable bandwidths, typically 20 Hz, 400 Hz, and 3.1 kHz shall be provided. The bandwidth rejection limits shall be as specified in table I.

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TABLE I. Bandwidth Rejection Limits.

<u>3 dB Rejection</u>	<u>60 dB Rejection</u>
20 Hz $\pm$ 2 Hz	20 Hz $\pm$ 90 Hz
400 Hz $\pm$ 40 Hz	400 Hz $\pm$ 1.1 kHz
3.1 kHz $\pm$ 310 Hz	3.1 kHz $\pm$ 1.85 KHz

### 3.2 Amplitude.

**3.2.1 Amplitude measurement range.** +20 dBm to -120 dBm.

**3.2.2 Amplitude display resolution.** 0.01 dBm or less.

**3.2.3 Level accuracy.**  $\pm$ 1 dB for selective measurements,  $\pm$ 2 dB for wideband measurements.

### 3.3 Spurious responses.

**3.3.1 Image rejection.** 80 dBc or more between 100 MHz and 132 MHz.

**3.3.2 If rejection.** 80 dBc or more below 60 kHz and 60 dBc or more above 60 kHz.

**3.3.3 Harmonic distortion.** 75 dB below full scale in the low distortion mode of operation above 4 kHz.

**3.3.4 Intermodulation distortion.** 78 dB below full scale over the offset range of 7 kHz to 1 MHz, with both tones less than 10 MHz.

**3.4 Demodulated audio output.** A demodulated audio output shall be provided with an output level of 0 dBm when terminated into a 600 ohm load.

**3.5 Input impedance.** Operator selectable 50 and 75 ohms using BNC connectors and 600 ohms using 3 banana jacks (high, low, and ground).

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### **3.5.1 Unbalanced input impedance.**

- a. 50 ohms  $\pm 7\%$ .
- b. 75 ohms  $\pm 7\%$ .

### **3.5.2 Balanced input impedance.** 600 ohms $\pm 12\%$ .

**3.5.3 High impedance probe.** The equipment shall be provided with a probe that has the following characteristics:

- a. Frequency response: 50 Hz to 30 MHz.
- b. Input RC: 10 Megohms shunted by 10 pF.
- c. Attenuation ratios: 10:1  $\pm 5\%$ , 100:1  $\pm 5\%$ .
- d. Maximum input: 10:1  $\pm 300\text{V}$  (dc + peak ac), 100:1  $\pm 500\text{V}$  (dc + peak ac); dc component not to exceed 200V.

**3.6 Tuning meter.** An analog meter shall be included as part of the amplitude measurement display for tuning purposes.

## **4. GENERAL REQUIREMENTS.**

**4.1 Power source.** MIL-T-28800 nominal power source requirements are invoked. Maximum power consumption: 150W.

**4.2 Weight.** 20 kg (44 lb) maximum.

**4.3 Lithium batteries.** Per MIL-T-28800, lithium batteries are prohibited without prior authorization. A request for approval for the use of lithium batteries, including those encapsulated in integrated circuits, shall be submitted to the procuring activity at the time of submission of proposals. Approval shall apply only to the specific model proposed.